

CLAIMS

What is claimed is:

- 5 1. A network device for transmitting compressed video data onto a channel, the network device comprising:
- a processing apparatus designed or configured to locate macroblock boundaries in the compressed video data;
- 10 a rate controller designed or configured to selectively pass through macroblock data in the compressed video data; and
- a transmitting network interface designed or configured to transmit the compressed video data onto the channel.
- 15 2. The network device of claim 1 wherein the macroblock data comprises DCT coefficients included between the macroblock boundaries.
3. The network device of claim 1 wherein the processing apparatus is designed or configured to count the number of bits of in a macroblock to locate the macroblock boundaries.
- 20 4. The network device of claim 1 further comprising a scheduler, operably coupled to the rate controller, and designed or configured to schedule packets including the compressed data.
- 25 5. The network device of claim 1 further comprising a transcoding apparatus, operably coupled to the rate controller, and designed or configured to transcode compressed video data.
- 30 6. The network device of claim 5 wherein the rate controller is further configured to output a control signal to the transcoding apparatus that determines the amount of rate reduction when transcoding the compressed video data using the transcoding apparatus.

7. The network device of claim 1 further comprising a receiving network interface designed or configured to receive a bitstream including the compressed video data.

8. The network device of claim 7 wherein the receiving network interface and the transmitting network interface are included in a combined network interface.

9. The network device of claim 7 further comprising an input buffer, operably coupled to the receiving network interface and operably coupled to the processing apparatus, that stores the compressed video data.

10. The network device of claim 9 further comprising an output buffer, operably coupled to the transmitting network interface and operably coupled to the processing apparatus, that stores the compressed video data before being provided to the transmitting network interface.

11. The network device of claim 10 wherein the network device copies the macroblock data selected for pass through from the input buffer to the output buffer.

12. A method for transmitting compressed video data over a channel, the method comprising:
receiving a bitstream including the compressed video data;
locating macroblock boundaries in the compressed video data;
selectively passing through macroblock data in the compressed video data defined by the macroblock boundaries; and
transmitting the compressed video data onto the channel.

13. The method of claim 12 wherein locating the macroblock boundaries comprises parsing the compressed video data.

14. The method of claim 13 wherein locating the macroblock boundaries comprises counting the number of bits from the start of a macroblock to the end of a macroblock

15. The method of claim 13 further comprising partial decoding of motion vectors and mode info included in a macroblock.

16 The method of claim 12 further comprising selectively passing through picture data in
the compressed video data defined by picture boundaries.

17 The method of claim 12 wherein selectively passing through the macroblock data
5 defined by the macroblock boundaries comprises block copying the macroblock data from an
input buffer to an output buffer.

18. The method of claim 12 further comprising transcoding the video data to produce
10 compressed video data having a lower bit rate.

19. The method of claim 18 wherein the transcoding comprises re-quantization with a
larger step size.

20. A network device for transmitting compressed video data onto a channel, the network
device comprising:

a processing apparatus designed or configured to locate picture subregion boundaries
in the compressed video data;

a rate controller designed or configured to selectively pass through picture subregions
in the compressed video data; and

transmitting the compressed video data onto the channel.

21. A method for transmitting compressed video data over a channel, the method
comprising:

receiving a bitstream including the compressed video data;

locating picture subregion boundaries in the compressed video data;

selectively passing through picture subregions in the compressed video data; and

a network interface designed or configured to the compressed video data onto the
channel.

22. The method of claim 21 wherein the video data is compressed according to an MPEG
standard.

23. The method of claim 21 further comprising selectively passing through slice data in the compressed video data defined by slice boundaries.

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24. A network device for transmitting compressed video data over a channel, the system comprising:

means for receiving a bitstream including the compressed video data;

means for locating macroblock boundaries in the compressed video data;

10 means for selectively passing through macroblock data in the compressed video data defined by the macroblock boundaries; and

means for transmitting the compressed video data onto the channel.

25. The network device of claim 24 wherein means for locating the macroblock boundaries comprises means for parsing the compressed video data.

26. The network device of claim 24 further comprising means for transcoding the video data to produce compressed video data having a lower bit rate.

27. A computer readable medium including instructions for transmitting compressed video data over a channel, the instructions comprising:

instructions for receiving a bitstream including the compressed video data;

instructions for locating macroblock boundaries in the compressed video data;

25 instructions for selectively passing through macroblock data in the compressed video data defined by the macroblock boundaries; and

instructions for transmitting the compressed video data onto the channel.